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03 January 2002

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Attorney Docket No. P50572X1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	DeBouck, <i>et al.</i>	03 January 2002
Serial No.:	09/297,701	Group Art Unit No.: 1655
Filed:	May 5, 1999	Examiner: Souaya, J.
For:	METHODS FOR IDENTIFYING GENES ESSENTIAL TO THE GROWTH OF AN ORGANISM	

Assistant Commissioner of Patents  
Washington, D.C. 20231  
Attention: Box AF

**AMENDMENT & RESPONSE UNDER 37 C.F.R. §1.116**

In response to the Final Office Action mailed October 3, 2001 (Paper No. 11) (herein "Office Action"), the Applicants respectfully request entry into the record and consideration of this amendment and response. As this amendment and response is timely filed within the shortened statutory period for response of 3 months, no fee is required. Please charge any additional requisite fees relating to this amendment and response to Deposit Account No. 19-2570. Please add new claim 13 to the above-identified application as follows:

**In the Claims:**

13. (new) The method of claim 1 or 12 wherein the plurality of materials derived from the genomic library of step (b) comprises bacteria containing individual

clones spotted onto and grown on a surface of the solid support at predefined locations or regions, or plasmid clones isolated from said library, PCR products derived from the inserts from the plasmid clones, or oligonucleotides derived from sequencing of the plasmid clones, which are immobilized to the surface of the solid support at predefined locations or regions.

### **REMARKS**

Claims 1-12 are pending in the instant application. Claims 1-12 stand rejected. No claims have been objected to. New claim 13 has been added. Support for the new claim is on page 7, line 28, of the specification. In view of the following amendment and response, the Applicants believe the claims presented herein are allowable. Reconsideration is respectfully requested.

### **REJECTIONS UNDER 35 U.S.C. §103(a)**

Claims 1-12 are rejected under 35 U.S.C. §103(a), as allegedly being unpatentable over a combination of Nishi, *et al.* (JBC, march 1994, vol. 269, pp. 6320-6324)(herein referred to as "Nishi") and Quandt, *et al.* (Gene, 1993, vol. 127, pp. 15-21)(herein referred to as "Quandt") in view of Lennon, *et al.* (Trends in Genetics, October 1991, vol. 7, pp. 314-317)(herein referred to as "Lennon").

The Applicants respectfully traverse this rejection to the extent that it applies to Claims 1-12, and new Claim 13. "[T]he references must be viewed without the benefit of hindsight vision afforded by the claimed invention." *Hodosh v. Block Drug Co.*, 786 F.2d 1136, 1143 n.5, 220 U.S.P.Q. 182, 187 n.5 (Fed. Cir. 1986). The claimed invention could not have been obvious to one skilled in the art, at the time the invention was made because neither Nishi, Quandt, nor Lennon teach or suggest the Applicants' invention as claimed in claims 1-12 and new claim 13. The present

invention is directed to an array method of identifying genes essential to the growth of single celled organisms such as bacteria, viruses, or fungi that are not necessarily dependent on expression of RNA in test samples to identify genes essential for growth. Nishi and Quandt in view of Lennon neither teach nor suggest using DNA containing insertional or transposable elements from test cultures as template for generating specific hybridization probes. The present invention uses labeled DNA to generate unique hybridization probes wherein primer extension reactions are directed against the inserted elements and the reaction extends into the flanking DNA sequence. Only mutant genes containing a randomly integrated transposon or a similar insertional or transposable element of known sequence or a constructed suicide vector will generate probe that will hybridize with the grids.

For a proper obviousness rejection under 35 U.S.C. 103, the Examiner has the burden of establishing *prima facie* with evidence or reasons that, *inter alia*, at the time of the invention, (1) the prior art of record would have suggested or motivated one of ordinary skill in the art to carry out the combination and modification of the prior art as suggested by the Examiner to arrive at the claimed invention, and (2) "the prior art would also have revealed that in so making or carrying out, those of ordinary skill in the art would have a reasonable expectation of success. Both the suggestion [or motivation] and the reasonable expectation of success must be founded in the prior art, not in the appellants' disclosure." *In re Vaek*, 20 U.S.P.Q.2d 1438, 1442 (Fed. Cir. 1991) (citations omitted).

The Office Action points to nothing in the cited references that would impel a modification of the disclosed methods necessary to arrive at the instant invention.

The Examiner alleges that the claimed invention would have been *prima facie* obvious

to the ordinary artisan to have generated shorter probes that contained the inserted elements to detect hybridization differences between mutant and wild type strains.

The Applicants agree with the Examiner's acknowledgment that non-specific hybridization results are common complications in general hybridization methods depending on the length of the probe and hybridization conditions. However, the prior art cited does not suggest or motivate one skilled in the art to generate hybridization probes directed against the inserted elements wherein the reaction extends into the flanking DNA sequence.

Therefore, it could not have been obvious to one skilled in the art, at the time the invention was made, to make the processes of claims 1-12 and new claim 13. Because neither the probe generation nor hybridization method of the invention is taught or suggested by Nishi and Quandt in view of Lennon. "It is impermissible...simply to engage in a hindsight reconstruction of the claimed invention, using the applicants structure as a template and selecting elements from references to fill the gaps." *In re Gormon*, 18 U.S.P.Q. 2d 1885, 1888 (Fed. Cir. 1991) citing *Interconnect Planning Corp. v. Feil*, 227 U.S.P.Q. 543, 551 (Fed. Cir. 1985).

The Applicants reserve the right to prosecute, in one or more patent applications, the claims to non-elected inventions, the claims as originally filed, and any other claims supported by the specification. The Applicants thank the Examiner for the Office Action and believe this response to be a full and complete response to such Office Action. Accordingly, favorable reconsideration and allowance of the pending claims is earnestly solicited.

Serial Number: 09/297,479  
Filing Date: April 30, 1999

If it would expedite the prosecution of this application, the Examiner is invited to confer with the Applicants' undersigned agent.

Respectfully submitted,



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